lection. Of these rarest species *Martesia smithii* [Martesia caribaea] is the only one now in the Am. Mus. (local) collection.

Davis, W. T., Variations of *Mya arenaria* on the shores of S. I., Nat. Sci. Ass. of S. I., Proc., vol. 1, p. 20, 1885.

On rocky ground the valves are of moderate size, the ends often broken and the exterior corrugated; in sandy ground the valves are very thin, of even growth, the markings complete, they are beautiful in form and color and of largest size; in peat the valves are very much deformed and much rounded.

On the distribution of *Litorina littoralis*, idem., vol. 1, p. 61, 1888 and vol. 3, p. 50, 1893.

It was first noticed by Mr. Hollick at the Narrows in 1888.

Smith, S., & Prime, Temple, Report on the Mollusca of L. I, and its Dependencies, Ann. Lyc. Nat. Hist. N. Y., vol. 9, pp. 377–417, 1870.

Herein *Odostomia trifida*, *O. bisuturalis*, *Polinices triseriata*, *Paludestrina minuta*, *Litorina rudis*, *L. littoralis* and *Lacuna vincta* are recorded as having their southern limit at S. I. This is certainly not the case with the first four species.

From these records one is struck by the decrease in the fauna accompanying the expansion of the city. One of the important factors in the extermination of the less hardy species is the crowding of the beaches for miles beyond the city limits with cottages and bungalos and the accompanying gasoline boats. This evil is obviated by the purchase of the land for large private estates and clubs.

VITREA (PARAVITREA) MULTIDENTATA AND LAMELLIDENS.

BY GEO. H. CLAPP.

Having recently received a specimen of *V. lamellidens* from Norway, Me., I have gone over my collection with the idea of trying to find if *lamellidens* as it occurs in the north is really the same as the typical form from the Great Smoky Mountains or, as Dr. Pilsbry suggests in Proc. Acad. Nat. Sci., 1903, p. 209, merely "accelerated individuals (of *multidentata*), sporadically occurring."

The figures on Pl. III are from camera-lucida drawings all magnified 10 diameters. The shells were selected for size only, that is as near the same size as possible from material at hand, and from localities as near together as I had them in my collection. Figs. 13 to 16 are large shells of each species.

1—*lamellidens* Thunderhead, Gt. Smoky Mts.	Diam. 2.70 mm.,		Umbilicus .29 mm.	
2—*multidentata* Oakdale, Morgan Co., Tenn	" 2.70 "		" .52 "	
3—*lamellidens* Anderson, Franklin Co., Tenn	" 1.96 "		" .29 "	
4—*multidentata* Sherwood, Franklin Co., Tenn	" 2.19 "		" .35 "	
5—*lamellidens* Banners Elk, Wautauga Co., N. C.	" 2.40 "		" .29 "	
6—*multidentata* Cranberry, Mitchell Co., N. C	" 2.65 "		" .46 "	
7—*lamellidens* Litchfield, N. Y . . .	" 2.40 "		" .29 "	
8—*multidentata* Litchfield, N. Y. . .	" 2.53 "		" .46 "	
9—*lamellidens* Deering, N. H. . . .	" 2.13 "		" .20 "	
10—*multidentata* Hoosic, N. Y. . . .	" 2.53 "		" .46 "	
11—*lamellidens* Norway, Me.	" 2.08 "		" .23 "	
12—*multidentata* Quebec, Can. . . .	" 2.70 "		" .40 "	
13—*lamellidens* No. 1, large shell . .	" 3.90 "		" .46 "	
14—*multidentata* Stevenson, Ala., large	" 3.11 "		" .69 "	
15—*lamellidens* No. 1 same size as No. 14	" 3.11 "		" .35 "	
16—*multidentata* largest Quebec	" 3.07		" .63 "	
17—*lamellidens* No. 1 same size as 7, 9 and 11.	" 2.21		" .29 "	
18—*lamellidens* No. 1 same size as 7, 9 and 11.	" 2.27		" .29 "	

From the measurements given above it will be seen that in shells of approximately the same diameter the umbilicus in *lamellidens* is about three-fifths of the diameter of that of *multidentata*, the single marked exception being Nos. 3 and 4.

In figures 13, 14, 15 and 16, mature shells, it will be noticed that in *multidentata* the umbilicus widens rapidly in the last whorl while in *lamellidens* it does not. This can also be seen in the other figures, but it is not so pronounced.

A series of 76 *multidentata* from 13 localities and 45 *lamellidens* from 8 localities were measured. Where I had only a few from a given locality all were measured, but in the case of large series a few were picked out at random. These shells ran from 1.85 to 3.28 mm. diameter in *multidentata*, 9 of them being 3.00 mm. diam. and over, and from 1.55 to 4.03 mm. diameter in *lamellidens*, 23 of them being 3.00 mm. and over.

42 *multidentata* and 28 *lamellidens*, 2.50 mm. diameter and over, gave the following averages:

V. multidentata av. diam. 2.79 mm., diam. umbilicus 0.51 mm.

V. lamellidens av. diam. 3.39 mm., diam. umbilicus 0.39 mm.

These averages show that the umbilicus is contained 5.5 times in the diameter of the shell in *multidentata* and 8.7 times in *lamellidens*.

Another difference which is well shown in the figures is the angle made by the teeth and lamellæ to lines drawn parallel to the lip and at right angles to it.

The rows of teeth and the lamellæ were counted in all of the 121 shells measured and were found to vary from 1 to 4 in *multidentata* and from 0 to 3 in *lamellidens*. In both species there is a tendency to complete absorption in the fully adult shell and in my largest *lamellidens*, 4.03 mm. diam. from Thunderhead, Gt. Smoky Mts., I cannot distinguish a trace of the lamellæ. A *lamellidens* from Thunderhead has 4 lamellæ, one of the apparently 3 being double.

The largest *multidentata* have from 6 to 6.25 whorls while the largest *lamellidens* have 6.5 to 7.

V. multidentata when adult has a well-defined callus connecting the end of the lip which is entirely absent in *lamellidens*. In both species the lip is slightly thickened when adult while in immature shells it is very thin and generally broken in cabinet specimens which accounts for the apparent difference in the shape of the aperture of the shells figured, as it was very hard to trace.

I believe that the figures and data given above prove that the two species are distinct and that the northern shells, though smaller, are the same as typical *lamellidens* from the southern mountains. Compare Figs. 17 and 18, from the type locality,

with Figs. 7, 9 and 11 northern shells. An examination of the youngest shells that I have seen would seem to indicate that *lamellidens* may be the ancestral form as in very young *multidentata* the teeth are generally fused, so much so in fact that in one of two cases I had separated them as *lamellidens;* but careful focusing of the microscope brought out the fused teeth, and measurements showed the relatively larger umbilicus.

THE NOMENCLATURE AND SYSTEMATIC POSITIONS OF SOME NORTH AMERICAN FOSSILS AND RECENT MOLLUSKS. II.

BY JUNIUS HENDERSON.

Planorbis cirrus White, 1879, from the Tertiary of Wyoming, was the next year cited by the same author as though it were spelled *cirratus*. Since then the latter name has been universally, but improperly, used instead of *cirrus*.

Physa bullata White, 1886 (U. S. Geol. Surv., Bull. 36), from the Eocene of Utah, is preoccupied by *P. bullata* P. and M., 1838, and *P. bullata* Gould, 1855. However, on page 12 of his bulletin, and in the legend of plate 3, White used the name *bullatula* for the same species, the use of *bullata* on page 22, where it was described, perhaps being unintentional. Hence White's species should be known as *Physa bullatula*. Whether Gould's species should be renamed depends upon whether it is a valid form or a synonym of some other form, which I am now unable to determine.

Physa carletoni Meek, 1872, from the Cretaceous of Utah, is incorrectly referred to as *P. carltoni* by Grabau and Shimer, 1900. Such a mistake is easily made, but unfortunately there is a prior use of *carltoni* in this genus by Lea, 1869. Though confusing, I suppose the names are sufficienty distinct so that Meek's name may stand. His species has been so frequently mentioned in various reports that it would be a shame to disturb the name unless required by the rules.

Acella haldemani White (=*Tortacella haldemani*, in Auriculidae), from the Cretaceous of Wyoming, is preoccupied by *Lymnaea haldemani* Deshayes, 1867 (=*Acella haldemani*, accord-